

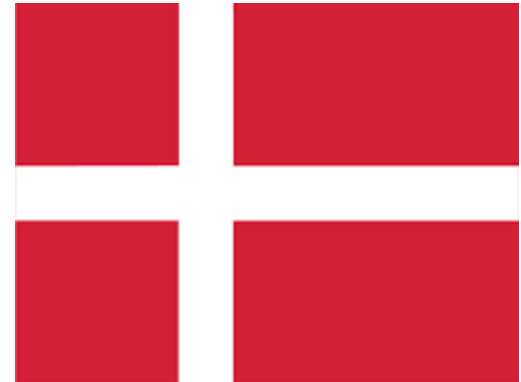
Has fires changed over years and what is the long term consequence for firefighters, citizens and society



Sveiki



Goddag



Has fires changed over years and what is the long term consequence for firefighters, citizens and society

Tommy Kjaer

Firefighter 27 years. Special trained.

Education as fire officer and instructor.

Professional rescue diver.

Certified in “Reconstruction and Integration of Traumatic Stress”

Editor of firefighter magazine for 10 years.

Union leader for 6 years.

Member of deferent boards regarding firefighters safety and health.

Founder of “Danish Firefighter’s Cancer Organization” BFC

Member of honor upon “The Nordic Firefighters” NBS

Winner of “The Danish Community Awards 2015”



Has fires changed over years and what is the long term consequence for firefighters, citizens and society

“Here and now” safety. -just a few...

- Faster growing and more toxic fires
- Building collapse
- Burns- and heat stress
- Explosions.
- Too few firefighters on the scene.



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“Long terms” health.

- Heart problems.
- Brain damage.
- Psychological and mental problems such as PTSD, depression, burnout etc.
- Cancers.



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Why is this getting worse?

- Flammable building products and interior decorations
- Use of plastics
- Use of chemistry such as flame retardants



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Toxic smoke from fires are the big killer

- Kills citizens instantly
- Gives firefighters cancers



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CARCINOGENS from all fires.

- Benzene
- PAH's -Polycyclic Aromatic Hydro Carbons
- CO and CO₂
- Formaldehyde
- Dioxin
- Sod
- (Asbestos)



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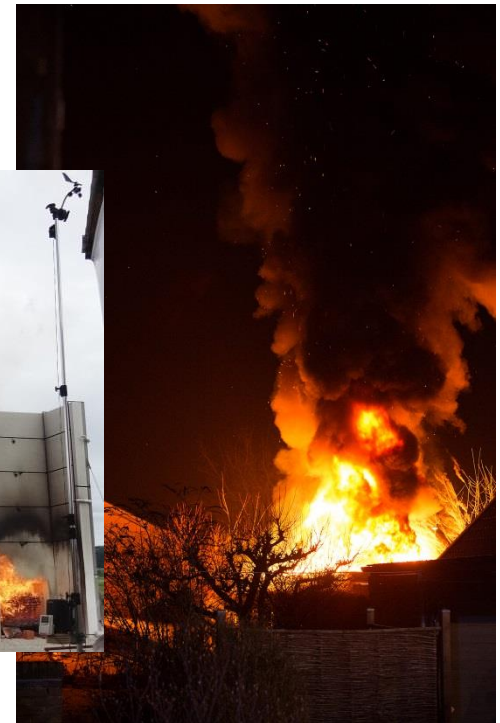
- More and more plastics
- Glue in wood
- Chemical cocktail
- Synergetic effect. $1+1=4$



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Building fires tests to flashover.

- 30 years ago: 15 min.
- Today: 3 min.



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Modern furniture and building materials contain synthetic polymers that during combustion emit a large spectrum of toxic compounds, such as

- Acetaldehyde
- Formaldehyde
- Ammonia
- Hydrogen cyanide
- Nitrogen oxides
- Hydrogen chloride
- Phosgene
- Sulphur dioxide
- Chlorine



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This...



Firefighters safety in modern fires

Can lead to this...



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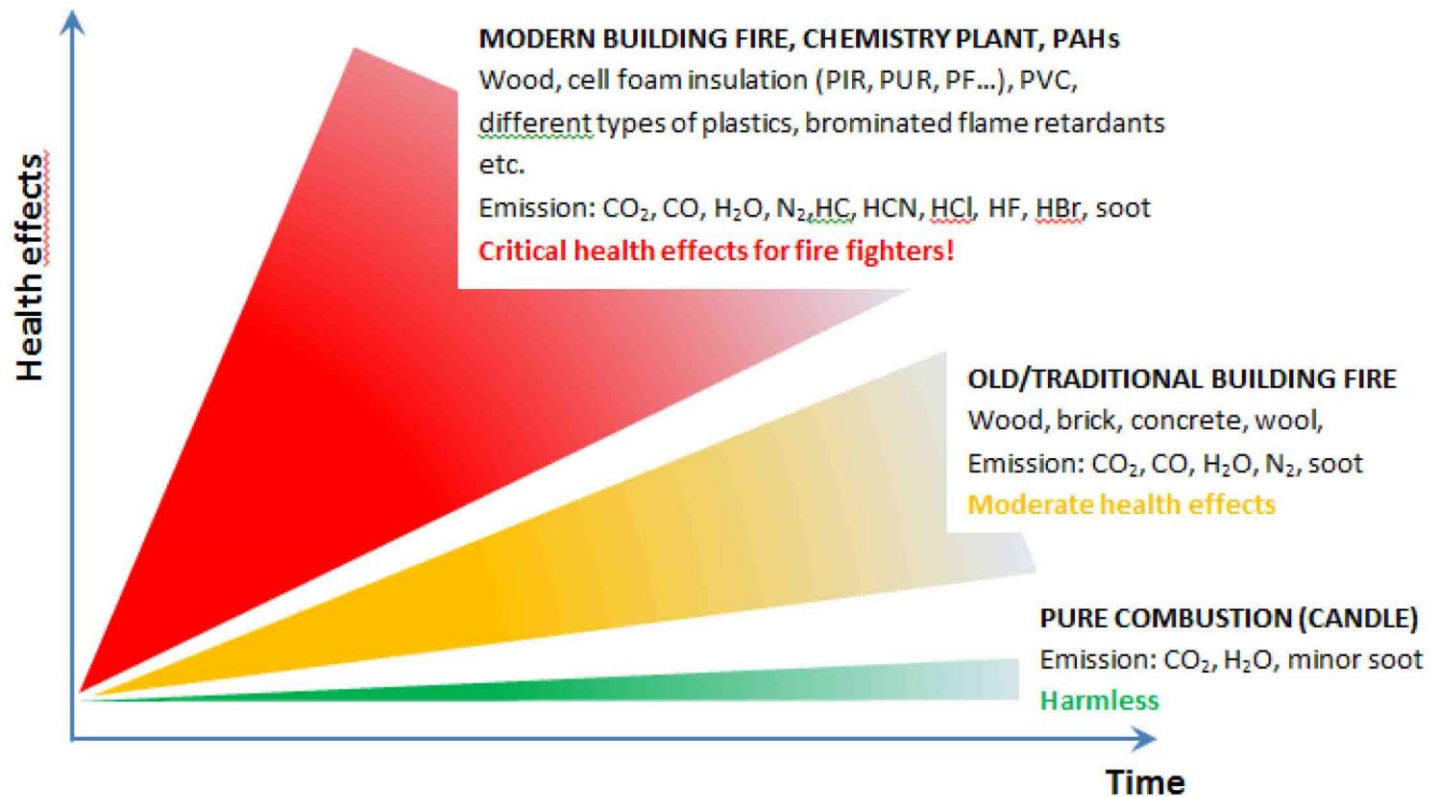
Help firefighters to save life.

**What's bad for firefighters,
is bad for citizens**

Make NO mistake...



Has fires changed over years and what is the long term consequence for firefighters, citizens and society



Ref: Lars Schjøtt Sørensen, Danish Building Research Institute, University of Copenhagen



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Conclusions

- Building fires today are developing faster, often more intensively and last, but not least, they are more toxic.
- The chemical mixture of smoke today is different compared with the smoke content 40-50 years ago.
- The reason for the change in smoke is mainly due to the introduction of new materials.
- Building fires with modern materials and interior is a bigger threat for long term health for firefighters and citizens.



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Fire fighters are the modern days chimney sweepers

The first reported occupational cancer by Percivall Pott in 1775 linking soot to cancer led to the first preventive legislation passed by British Parliament in 1778

This act stated that no boy should be work as chimney sweepers before he was eight years old.



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Protect the protectors

Around 50 states and provinces in Canada, USA and Australia recognize occupational cancers for fire fighters through preventive legislation based on science and protection of the once that put on their life and health on the line to protect society.

PRIMARY SITE CANCERS

MINIMUM PERIOD OF REGULAR EXPOSURE TO THE HAZARDS OF A FIRE SCENE

Primary leukemia	5 years
Primary site brain cancer	10 years
Primary site bladder cancer	15 years
Primary site lung cancer in non-smokers	15 years
Primary site ureter cancer	15 years
Primary site kidney cancer	20 years
Primary site colorectal cancer	20 years
Primary site testicular cancer	20 years
Primary site esophageal cancer	25 years
A primary non-Hodgkin's lymphoma	20 years
A primary site prostate cancer	15 years
A primary site skin cancer	15 years
A primary site breast cancer	10 years
Multiple myeloma	15 years

AR 102/2003 s2;249/2005;74/2010;73/2011



**Has fires changed over years and what is the long term consequence for
firefighters, citizens and society**

Help firefighters to save life.

What's good for firefighters is good for citizens

Make NO mistake about that...



Has fires changed over years and what is the long term consequence for firefighters, citizens and society



Labai ačiū



Tak

